

TITLE

POLYMERIC PHOSPHITE COMPOSITION AND HYDROCYANATION OF
UNSATURATED ORGANIC COMPOUNDS AND THE ISOMERIZATION OF
UNSATURATED NITRILES

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ABSTRACT

A polymeric composition, a process for producing the composition, and a process for using the composition in, for example, hydrocyanation or isomerization are disclosed. The composition comprises repeat units derived from (1) a carbonyl compound, a monomer, and phosphorochloridite; (2) phosphorus trichloride, a polyhydric alcohol, and an aromatic diol; or (3) combinations of (1) and (2) in which the monomer can be a polyhydric alcohol, an amine, combinations thereof. The composition can further comprise a Group VIII metal and optionally a Lewis acid. The composition can be produced by (1) contacting a carbonyl compound with the monomer to produce an intermediate and contacting the intermediate with phosphorochloridite; (2) contacting phosphorus trichloride with a second polyhydric alcohol under a condition sufficient to produce a phosphorus-containing polymer and contacting the phosphorus-containing polymer with an aromatic diol; or (3) contacting an N,N-dialkyl dichlorophosphoramidite with a second polyhydric alcohol to produce a polymer phosphoramidite, contacting the polymer phosphoramidite with an acid such as HCl to produce the phosphorus-containing polymer, which is then contacted with an aromatic diol. The composition can be used as catalyst, for example, for converting an unsaturated organic compound to a nitrile and isomerizing a nitrile.

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